

REMARKSThe Rejection Under 35 USC § 103(a)

Applicants respectfully traverse the rejection of claims 1-12 under 35 USC § 103(a) as unpatentable over Chandler et al. (U.S. Patent No. 5,874,885) in view of Melanson (U.S. Patent No. 4,730,102).

The present invention is directed to a process for making a PTC device in which a metal lead is laser welded onto the metal foil electrode that is attached to a laminar polymer PTC element. In order to control the heat that is generated during the laser welding process in the vicinity of the weld, and to avoid damaging the conductive polymer in the laminar polymer PTC element, the two metal layers of the metal foil electrode are carefully selected. By providing that the laser beam absorption of the layer in contact with the laminar polymer PTC element (i.e. the X-th layer) is less than the laser beam absorption of the layer that is in contact with the metal lead, mechanical damage or thermal damage is limited. The process of the invention requires that there be three metal layers present, i.e. the X-th layer, the first layer, and the metal lead.

Chandler et al. discloses an electrical device in which a conductive polymer element is sandwiched between two metal foil electrodes. The electrode comprises a base layer (9) made of a first metal, an intermediate metal layer (15) made of a metal that is different from the first metal, and a surface layer (17) that comprises a second metal and which has a specific average roughness and reflection density. In contrast to the Examiner's contention, element 17 is not "a metal lead element"; it is a surface layer that is intimately part of the metal foil electrode. Although Column 7, lines 40-44 disclose the possible attachment of one or more metal leads, e.g. wires or straps, to the metal foil electrode, there is no disclosure of the use of a laser to attach the lead to the electrode. Furthermore, there is in Chandler no teaching of the importance of the relative laser beam absorption levels of the metal layers in the metal foil electrodes.

The deficiencies of Chandler are not resolved by the addition of Melanson. Melanson discloses a ceramic heater in which a pair of metalized electrodes is positioned on a ceramic (e.g. barium titanate) body. A pair of lead wires is ultrasonically welded onto the metalized electrodes. There is no teaching of the importance of the electrodes having more than one layer, still less that the layers should have different laser beam absorption levels. One seeking to attach a metal lead onto a metal foil electrode in contact with a polymer PTC element and prevent thermal damage to the conductive polymer would not look to Melanson, since the ceramic body

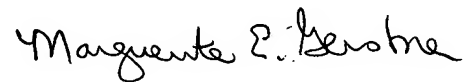
has the ability to withstand a very high temperature so thermal damage to the element would not be an issue. In addition, Melanson teaches directly away from the use of laser welding, indicating that it requires extremely expensive equipment (column 1, lines 49-53).

As a result, this rejection is unfounded.

Conclusion

It is believed that this application is now in condition for allowance and such action at an early date is earnestly requested. If, however, there are any outstanding issues which can be usefully discussed by telephone, the Examiner is asked to call the undersigned.

Respectfully submitted,

A handwritten signature in cursive script, reading "Marguerite E. Gerstner".

Marguerite E. Gerstner
Registration No. 32,695
Telephone (650) 361-2483